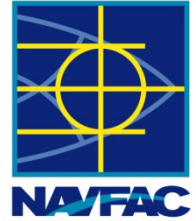


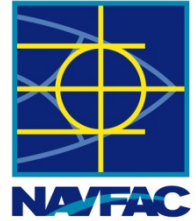


Parcel UC-1 Soil Vapor Investigation Update





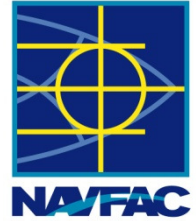
Presentation Overview



- **Review of Investigation Goals**
- **Field Work Summary**
- **Summary of Analytical Results**
- **Additional Evaluations Required – Next Steps**
- **Project Schedule Update**



Review of Investigation Goals

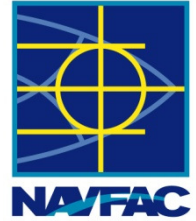


Investigation goals were derived from the Final ROD for Parcels D-1 and UC-1 (Navy, 2009):

- To evaluate potential vapor intrusion risks
- To identify COCs for which risk-based numeric action levels for VOCs in soil gas would be established (based on a cumulative risk of 10^{-6})
- To identify where the initial areas requiring institutional controls (ARIC) for VOCs would be retained and where they would be released
- To evaluate the need for additional remedial action in order to remove ARICs.



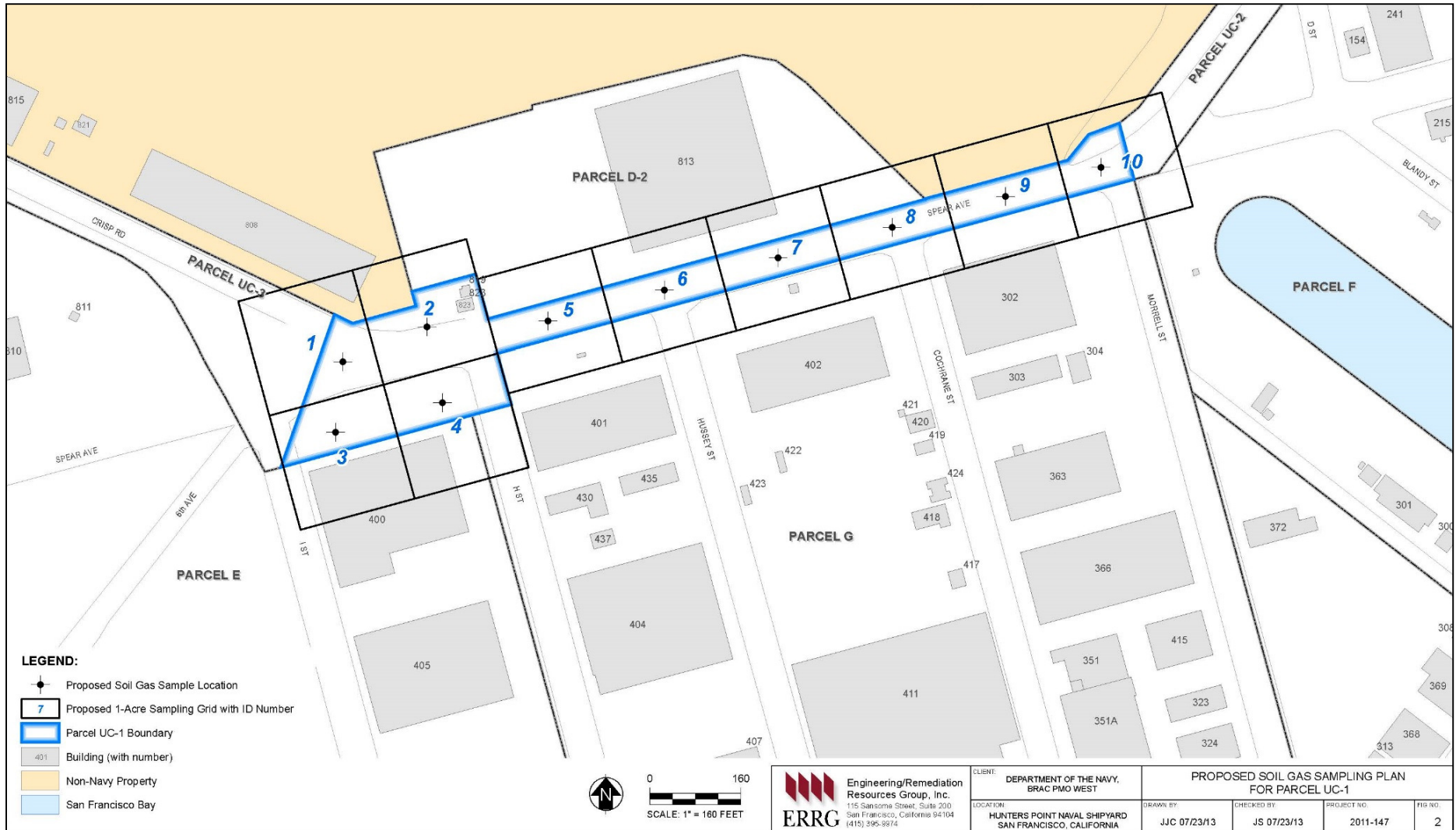
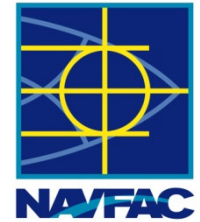
Field Work Summary



- Utility survey performed to identify active and abandoned utilities in the work zone
- Land survey performed to locate grid corners for 10 risk grids and sampling locations within grids
- Direct push drill rig used to install soil vapor sampling probes at 10 sampling locations
- Geotechnical samples were collected during probe installation (only analyzed where soil vapor data exceed SGALs)
- 11 soil vapor samples were collected from the 10 sampling locations; one per risk grid and one duplicate
- All samples were collected in summa canisters and analyzed for VOCs by an offsite laboratory by EPA method TO-15
- A map showing the risk grids and sampling locations is provided on the next slide

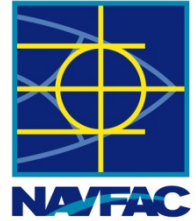


Risk Grids and Sampling Locations





Summary of Analytical Results from T0-15 Analysis

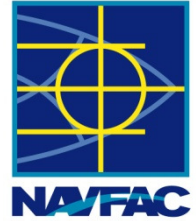


Notable detections / SGAL exceedances:

- Benzene
 - Benzene was detected in all 10 risk grids between 6.9 and 640 $\mu\text{g}/\text{m}^3$
 - Preliminary SGAL for benzene (8.39 $\mu\text{g}/\text{m}^3$) exceeded in 9 of 10 risk grids (UC1-SG02 through UC1-SG10)
 - Highest benzene concentrations were detected in risk grids 9 and 10 (UC1-SG09 [640 $\mu\text{g}/\text{m}^3$] and UC1-SG10 [450 $\mu\text{g}/\text{m}^3$])
- Trichloroethene
 - TCE was detected in 7 of 10 risk grids between 1.9 and 3,000 $\mu\text{g}/\text{m}^3$
 - Preliminary SGAL for TCE (59.3 $\mu\text{g}/\text{m}^3$) exceeded in 1 of 10 risk grids (UC1-SG10 [3,000 $\mu\text{g}/\text{m}^3$])
- Vinyl Chloride
 - VC was detected in 1 of 10 risk grids (UC1-SG10) at 31 $\mu\text{g}/\text{m}^3$
 - Preliminary SGAL for VC (3.12 $\mu\text{g}/\text{m}^3$) exceeded in UC1-SG10



Summary of Analytical Results from T0-15 Analysis

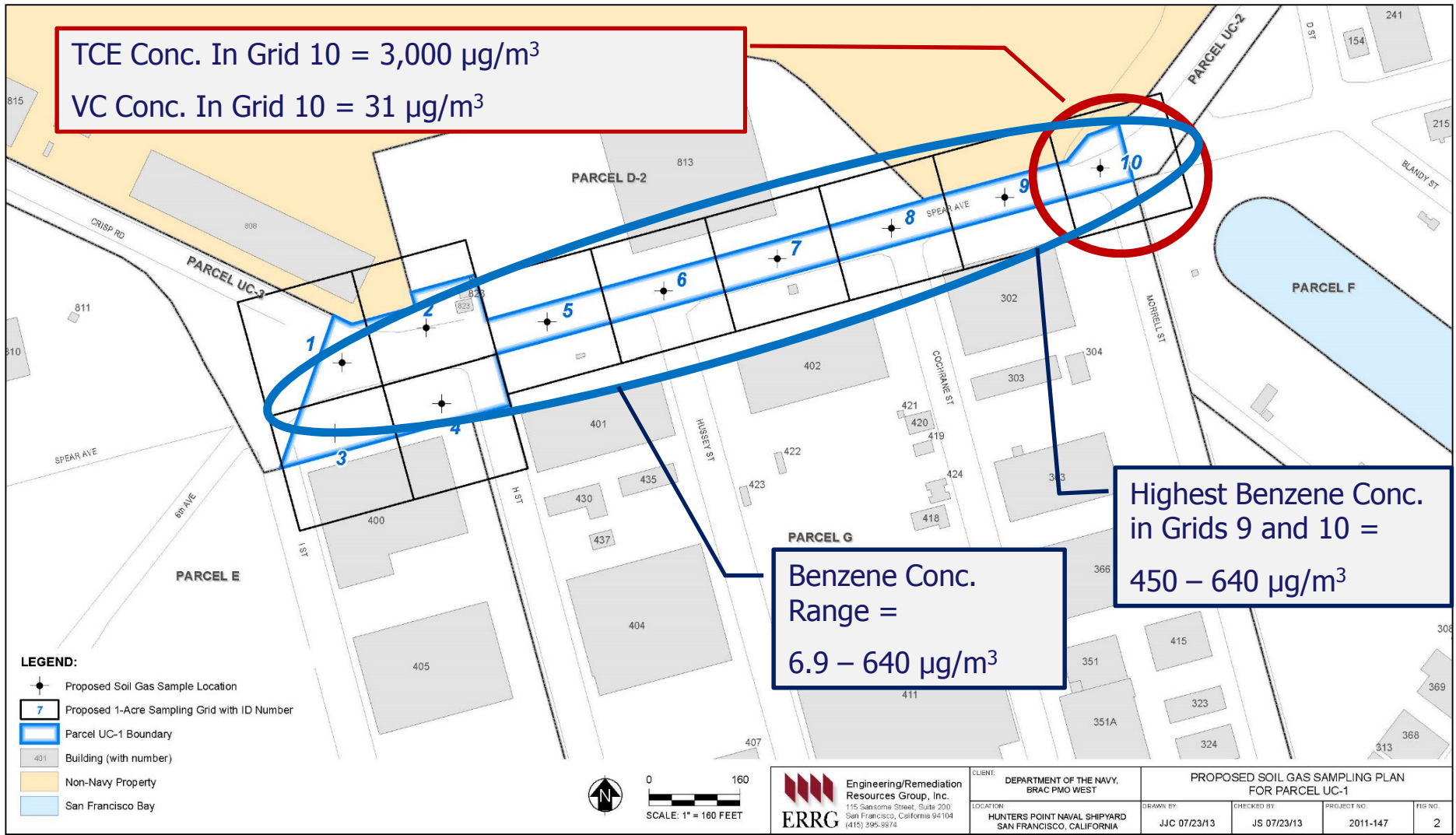
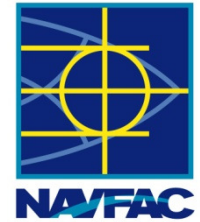


Preliminary Findings of Note:

- Highest benzene concentrations were detected in risk grids 9 and 10, which are adjacent to grids that posed an unacceptable risk in Parcels G and UC-2 (see next 3 slides)
- TCE and VC exceedances in risk grid 10 were not anticipated, given that adjacent grids in Parcels G and UC-2 do not demonstrate elevated concentrations of these compounds. Therefore, the source of TCE/VC is localized and limited in extent within risk grid 10

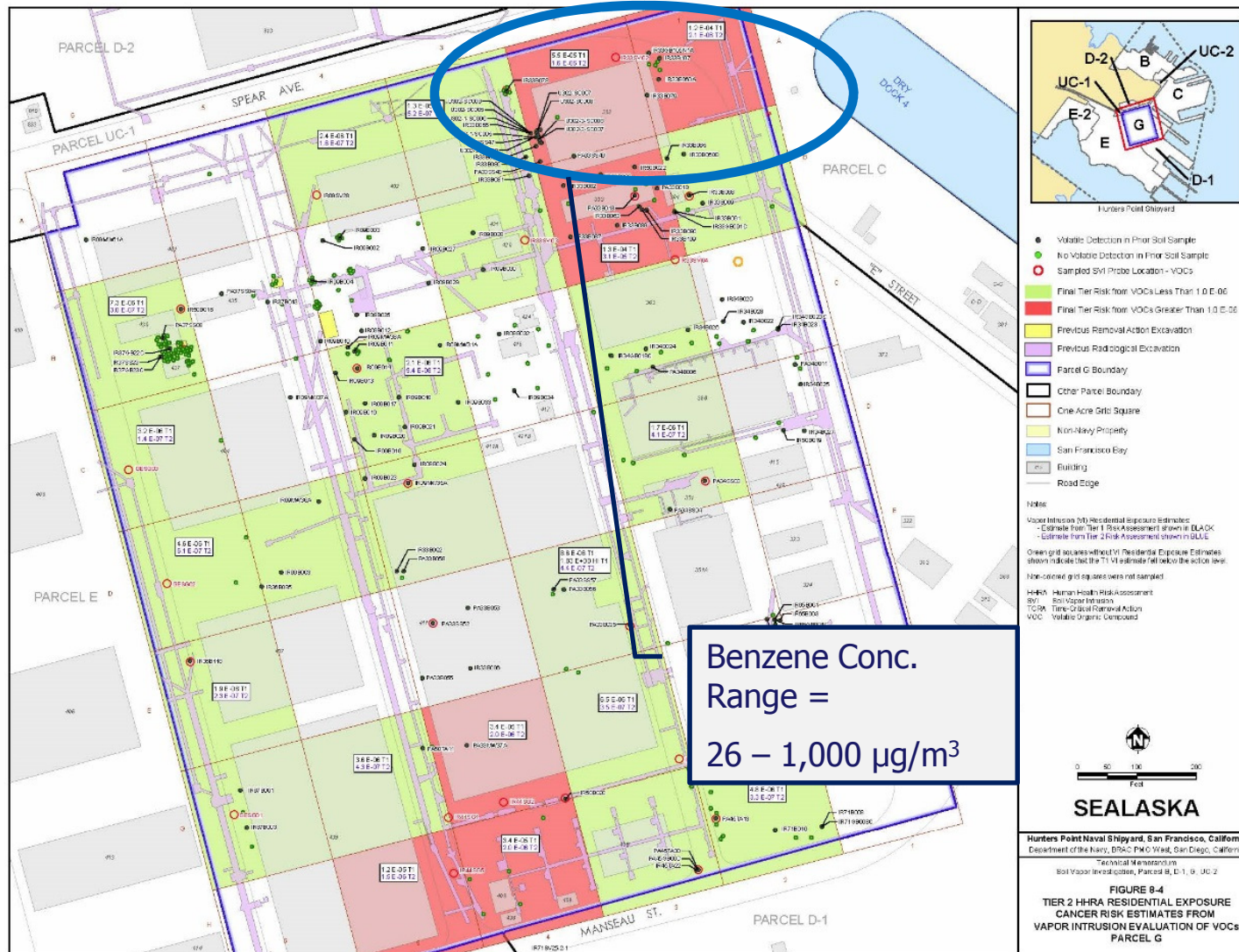


Notable VOCs Detections in Parcel UC-1





Risk Grids in Adjacent Parcel G with Elevated VOCs (Benzene)

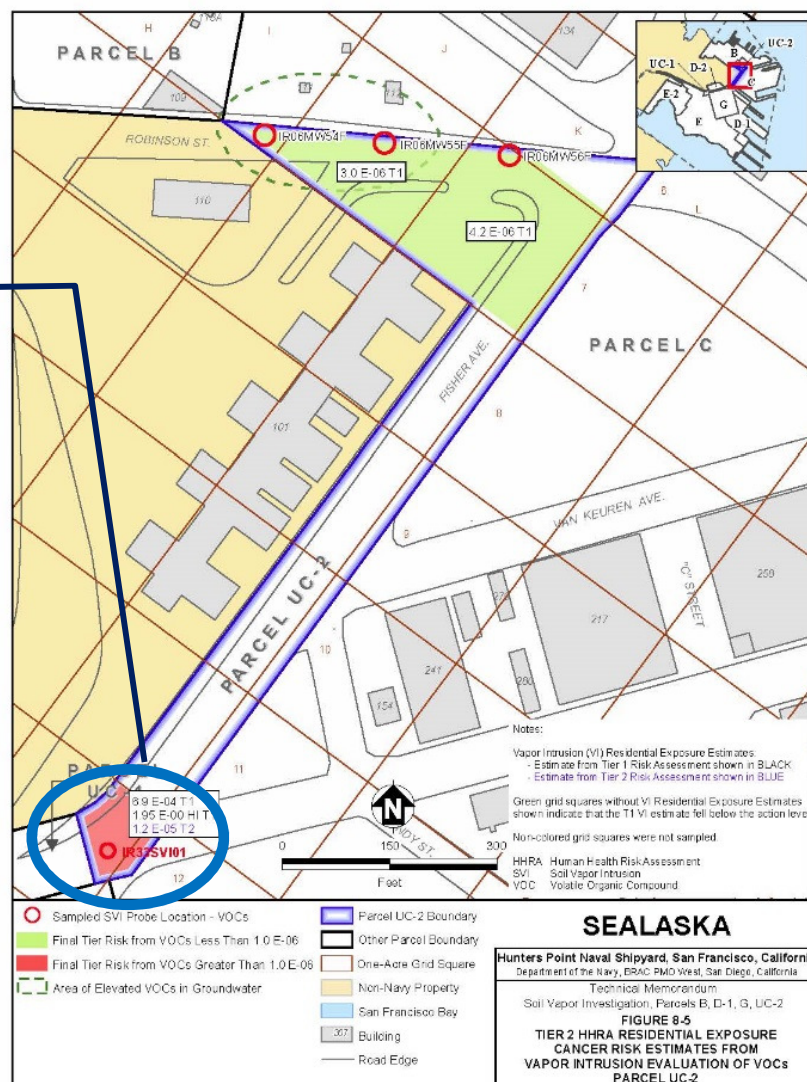




Risk Grids in Adjacent Parcel UC-2 with Elevated VOCs (Benzene)

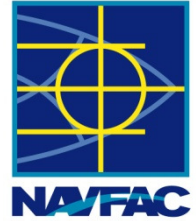


Benzene Conc. Range =
4,300 – 5,800 $\mu\text{g}/\text{m}^3$





Additional Evaluations Required – Next Steps



Tier 1 Risk Evaluations

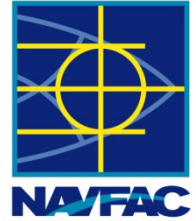
- Tier 1 risk evaluations will be performed on all risk grids where VOCs were detected
- The most current US EPA and DTSC attenuation factors (based on the residential use scenario) will be used in the Tier 1 screening process
- Tier 1 evaluations will determine if cumulative cancer or non-cancer risk at a given risk grid exceeds the health protective threshold (i.e., 10^{-6} for cancer risk and 1 for non-cancer risk)

Tier 2 Risk Evaluations

- In risk grids where unacceptable risk is present, the Navy will perform Tier 2 risk evaluations (using a Johnson and Ettinger Model)
- Geotechnical analyses are currently being performed on samples to allow for performing Tier 2 risk evaluations



Soil Vapor Investigation Sampling Schedule



TO-15 Lab analysis (+ Validation)	Oct 30 – Dec 30, 2013
Geotechnical Analysis	Nov 15 – Dec 30, 2013
Draft SVI Tech Memo	Feb 7, 2014
Final SVI Tech Memo	Apr 28, 2014
Draft UC-1/2 RACR Amendment	May 20, 2014
Final UC-1/2 RACR Amendment	Jul 30, 2014